Recent Advances in Surgical Treatment of Cancer Of the Upper End of the Stomach*

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THE surgical treatment of lesions of the cardiac end of the stomach and lower esophagus has been simplified and improved by the use of the transthoracic approach to these lesions. In this procedure the chest is entered through the left eighth interspace and the abdominal cavity is opened by incising the diaphragm above the esophagus. This incision is then carried down to the esophagus, and the stomach and lower esophagus are then freed and resected as indicated and a direct anastomosis performed between the esophagus and the distal portion of the stomach, which is pulled up into the thorax for this purpose.

Technically, the operation has proved feasible and does not involve too great a risk. The blood supply of the esophagus has proved ample to assure the healing of the anastomosis and the near term post-operative results have been excellent. In our own experience, the time elapsed and the small number of cases done does not enable us to draw any further conclusions.

This particular operation was first done successfully in one stage by Adams and Phemister in 1937. Since this time a number of authors have reported on the results of this operation. A number of small series have been recorded, and recently Sweet reviewed 127 cases in which the transthoracic approach was used. In 85 patients the lesion was in the stomach or lower esophagus. A resection was done in 61 patients; 24 cases were inoperable. The mortality was 19.5 per cent. Of the patients who survived, only three are alive and well three or more years post-operatively. Nevertheless, Sweet states that if after radical surgery the patient is relieved of his obstruction and can swallow again satisfactorily, if only for six months to one year, the operation should be considered worthwhile. We agree with this statement.

At Stanford University Hospital we have operated upon 16 patients with carcinoma of the esophagus and stomach by means of this approach. In nine patients a successful resection and anastomosis was done. Seven patients had inoperable lesions, but freeing the diaphragm around the growth enabled these patients to eat for a time following operation, which they had been unable to do previously. There were no hospital deaths in these 16 cases. One suspected case of carcinoma, which proved to be inflammatory, was resected. This patient died of a cardiovascular accident the day after operation and this was the only hospital death in the entire series of transthoracic operations. The transthoracic approach was used in five additional patients with benign esophageal lesions.

In four patients with megesophagus, a successful esophagogastrostomy was performed. We have used the transthoracic approach for malignant and benign lesions in 22 cases.

DEVELOPMENT OF THE OPERATION

The development and success of the operation are the result of three lines of effort. First and foremost has been the painstaking investigative and practical work over many years of the surgeons primarily interested in thoracic surgery. As long ago as 1871, Billroth demonstrated in animal experiments the feasibility of resection of the esophagus. In 1905 Sauerbruch performed experiments on cadavers consisting of transthoracic resection of the esophagus and its invagination into the stomach. Torek performed the first successful esophageal resection with indirect restoration of continuity. A long list of surgeons added their contributions in this field leading up to Adam's and Phemister's first successful one-stage resection with restoration of direct continuity between the esophagus and stomach in 1937. Since this time, the operation has been accepted rapidly as a standard procedure and many surgeons have reported their experiences with it. Among them are Ochsner and DeBakey, Garlock, Stephens, Sweet, Kay, Dorsey, Churchill and Clagett.

Coincident with the development of thoracic surgery and contributing largely to its present success has been the development of the art of anesthesia. Beginning with complicated and expensive positive pressure chambers up to the present simple method of intratracheal anesthesia, the anesthetists have simplified the problems of thoracic surgery and greatly lessened its complications. Beecher states that the transthoracic approach to upper abdominal lesions may produce, in fact, no more shock and perhaps even less than the trans-abdominal wall approach.

Finally, the introduction of newer forms of chemotherapy, notably the sulfa drugs and penicillin, in the last few years have greatly reduced the hazard of infection.

PREOPERATIVE CARE

As the patients are usually elderly and greatly undernourished, everything possible is done to improve their general physical state before operation. Blood transfusions and appropriate intravenous fluids are given, as well as vitamins. Sulfadiazine and penicillin are administered before surgery. It

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is important to wash and cleanse the esophagus thoroughly before operation.

OPERATION

The left pleural cavity is opened in the eighth or ninth interspace. The phrenic nerve is pinched to paralyze temporarily the diaphragm, and the latter is incised in its tendinous portion above the esophagus. The stomach is mobilized in the usual manner and this procedure is continued up the esophagus for a distance sufficient to get well above the growth. Mobilization of the stomach, and if necessary the duodenum, is an essential technical step in the operation, so that the distal portion of the stomach can be drawn into the thorax without tension for anastomosis with the esophagus. The anastomosis is made with chromic catgut and interrupted silk sutures. The cut end of the stomach is first closed and an end to side anastomosis is made between the esophagus and the fundus of the stomach. The incision in the diaphragm is closed around the remaining stomach, and the latter is fixed to the cut edges of the diaphragm with interrupted silk sutures. Fifty-thousand units of penicillin in 50 cc. of saline is left in the pleural cavity. A mushroom catheter is brought out in the tenth interspace and the wound closed.

POSTOPERATIVE CARE

Sulfadiazine and penicillin are continued as long as it appears necessary. The catheter is removed in 48 hours. The Levine tube is removed about the fifth day. The majority of patients have had a remarkably smooth convalescence. Pleural effusion, which disappeared after one or two tappings, appeared in a few cases. The patients are gotten out of bed early and they begin taking liquids by mouth 24 hours after the Levine tube is removed. Semi-solids and solid foods are added as tolerated, and none of our patients have had any difficulty in swallowing during their convalesence. There were no hospital deaths in the patients operated upon for carcinoma.

Of the nine patients in whom a carcinomatous lesion was resected, two died after a period of relief from symptoms; one in nine months and another in one and one-half years. A third was known to have metastasis six months after operation and has not been heard from since. He is presumed dead. Six patients are living after periods of one or two months to two years. All the patients in whom an inoperable lesion was found have had considerable temporary relief from their dysphagia.

This report and review of the results as given in the literature is not a hopeful one so far as ultimate cure is concerned. Nevertheless, the operation does furnish temporary relief for a varying period of time and offers the only present chance for cure in a previously hopeless condition.

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